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Judith Miller, Author and Journalist

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Publisher's Message

Reaching for Excellence

By Martin (Marty) Masiuk, Publisher

Floods in the Midwest, the collapse of a major Interstate highway bridge in Minnesota, forest fires in California, and the second anniversary of Hurricane Katrina – all are timely reminders of how vulnerable the United States is to random, frequently (but not always) unpredictable, and devastatingly violent acts of nature. Several of these acts have been described as "once-in-a-century" occurrences, but that reassuring pronouncement brings little or no comfort to the dead, the injured, and the displaced, or to the property owners whose residences or businesses have now gone with the wind.

Adding significantly to the general misery of the human condition in this first decade of the 21st century are the almost daily suicide/homicide bombings in Iraq and new terrorist attacks elsewhere, such as those in Hyderabad, India, last week. The Cold War may be over, and the possibility of a global nuclear holocaust is now approaching zero, but the world does not really seem that much safer than it did during World War II or in the almost five decades of confrontation between NATO and the Warsaw Pact that followed.

It may well be that the world will never be absolutely safe – neither from acts of nature nor from terrorist attacks. Which is why most political and military leaders, and most reasonable citizens, will accept a partial or halfway solution: "safer than before." But there is a major caveat attached to compromising on a less-than-perfect goal – namely, that the *pursuit* of excellence must never be abandoned but must, rather, continue for years and perhaps decades to come.

This issue of *DomPrep Journal* focuses on both the problems and the possibilities inherent in what must necessarily be an unending search for perfection, particularly in the battle against international terrorism. Among the problems, unfortunately, are several of terrifying magnitude – namely: (1) the increased likelihood that chemical-based "dirty" bombs may soon be used in sporadic "downtown" attacks against American cities; (2) the also growing possibility – evidenced by the failed but illuminating "Doctors Plot" in the United Kingdom several weeks ago – of an even more lethal attack, against those same cities, in which biological warfare agents are the terrorist weapons of choice; and (3) the less likely but absolutely cataclysmic possibility of one or more nuclear attacks against America.

These giant footprints of potential disaster dwarf in magnitude, of course, the small steps of improvement – the "possibilities" mentioned just above – that already are being achieved in cities and states throughout America. Breakthroughs in data communications, and in the interoperability of a broad spectrum of communications systems; advances not only in medicine but also in the preparedness of U.S. hospitals and other medical facilities to cope with mass-casualty incidents; the improved homeland-defense capabilities of the National Guard; and the increasingly proactive role played by Area Maritime Security Committees to protect the U.S. port system from terrorist attacks.

All of these topics, and more, are covered in this issue – and will be covered again and again in future issues, along with a host of other topics in the domestic-preparedness, homeland-defense, and counterterrorism fields. Perfection may not be a reachable goal, but "safer" is definitely achievable. So are "better" and "sooner" and other indicators of progress, and the true measure of that progress is not in the attainment of an impossible dream but in the reaching for it.

About the Cover: *During a training exercise testing the challenges facing the first responders to a potential mass-casualty incident involving one or more high-rise buildings, members of a tactical team – wearing C50 respirators developed and produced by Avon Protection Systems Inc. – ascend an internal ladder to the roof to help secure the building. (Photo courtesy of Avon Protection Systems Inc.)*

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Chlorine Tactics in Iraq; The Challenge to America

By Joseph Steger, Law Enforcement

For more than a decade, terrorist groups have been demonstrating an increasingly greater interest in using easily obtained chemicals as components of conventional explosive weapons. In Iraq, the first half of 2007 was marked by an alarming escalation of attacks using chemical-based "dirty" bombs. Meanwhile, police and fire services personnel in the United States have on a few occasions faced the ability, and willingness, of home-grown terrorists to mix explosives and chemical agents in attacks that have taken place on the U.S. homeland. Never before, in fact, has there been such widespread interest by terrorists and insurgents in maximizing the destructive effectiveness of what are officially described as chemical vehicle-borne improvised explosive devices (C-VBIEDs).

Almost two decades ago, in one of the earliest C-VBIED attacks on U.S. soil, Dean Harvey Hicks, a tax protester, loaded his four-door sedan with containers of bleach and ammonia that had been combined with an explosive consisting of ammonium nitrate and fuel oil explosives crammed into the shell of a 30-gallon residential water heater. On 19 September 1988, Hicks parked his C-VBIED in the basement parking lot of the IRS building in Los Angeles and used a delay detonator to make his escape before detonation. Fortunately, the blast turned out to be very inefficient both as an explosive and as a chemical delivery system, and there were no fatalities.

The first (1993) World Trade Center (WTC) bombing is a more recent and better known example in which the van used to carry the explosives was for all practical purposes a C-VBIED. The intensity of the 1993 blast was so strong, though, that it made the compressed chemical gas inert. No casualties resulted from the chemical-agent component of the explosive device.

Psychological As Well As Physical Damage

In the 14 years since then, and particularly since the 2001 attacks on the Pentagon and the WTC's twin towers, terrorists and insurgents have sought to improve their ability to disperse chemical agents through the use of explosives. In Iraq over the past year alone, in fact, there has been a sharp escalation in the use and refinement of C-VBIED attacks. In Ramadi on 21 October 2006, for example, terrorists combined twelve 120mm mortar shells and two 100-pound chlorine tanks to fashion a makeshift C-VBIED. Fortunately, there were no target deaths and very few injuries. A second such attack, though, which rocked the city of Ramadi on 28 January 2007, killed 16 Iraqis in a truck C-VBIED detonation. Both of the Ramadi attacks used suicide bomber tactics to control the delivery and detonation of their mobile chemical weapons.

The nation's law-enforcement communities must safeguard the common chemicals that can be stolen or diverted from legitimate uses to become a terrorist weapon

On 27 February, less than a month after the second Ramadi attacks, the town of Taji was racked by a type of detonation unfamiliar to the local population. Terrorists had attached an IED to a chlorine tanker truck. When the IED detonated it ruptured the chlorine tank and spewed toxic chlorine gas into the air.

The Taji attack, which killed nine Iraqis and sent another 150 people to the hospital with injuries, marked a clear trend by terrorists of leveraging commonly used and locally available chemicals as a weapon component. Although tragic to the individuals and families directly affected, the Taji attack resulted in

relatively few direct casualties. However, the psychological impact of the attack was significant. Because the Saddam Hussein regime used chemical agents routinely against civilians, the Iraqi people have become very sensitive psychologically to the implications of chemical attacks.

The terrorists continued to refine and improve their C-VBIED tactics. Over the course of the following week, Iraq and other nations were startled by a number of other C-VBIED attacks in that embattled nation. In that context, the Taji attack should perhaps be seen not as an isolated use of chemical weapons but, rather, as a tactical shift by the insurgent terrorists in their choice of weapons. In one incident, a truck laden with two chlorine canisters detonated in southwestern Baghdad, killing five people and causing about 75 chlorine-related injuries. A week later, another truck filled with chlorine canisters and explosives detonated in Ramadi – this attack, though, caused no chlorine-related casualties. Through the rest of the spring and into the early part of the summer there were over a dozen more chlorine/C-VBIED attacks – but, according to Iraqi officials, there were no additional deaths resulting from chlorine exposure.

A Debilitating Strain On the Human Psyche

The overall death toll from C-VBIED attacks is perhaps not remarkable by general WMD (weapons of mass destruction) attack standards. However, the debilitating effect on the psyche of the Iraqi people has been both cumulative and significant. Moreover, the C-VBIED tactic places greater strain on medical service systems. In addition to the typical injuries resulting from explosive detonations, the use of chemical devices adds contamination complications to the situation as well as the need to deal with inhalation injuries, chemical burns, and large-scale psychosomatic problems.

On 16 March of this year, terrorists launched the most devastating series of multi-pronged C-VBIED attacks experienced to date in Iraq. In three separate but well synchronized suicide/homicide attacks in al Anbar province, C-VBIEDs were detonated, killing two policemen and sending over 350 other people to hospitals and clinics for treatment for chlorine exposure. If nothing else, the 16 March attacks demonstrated the escalating sophistication of terrorists both in weapon construction and in the tactical applications used. One of the C-VBIEDs was a dump truck packed with explosives and a 200-gallon chlorine tank.

The lesson for U.S. first responders is that emergency services personnel need to become much more familiar with the physiological symptoms that result from the presence of chlorine gas

Low-yield detonations, strong enough to effectively disperse chemical agents, create fewer injuries from blast pressure waves and fragmentation. The use of too powerful an explosive charge, however, results in a thermal reaction with the chemical agent that in many if not all cases renders it partially or wholly ineffective. The 20 February attack, which involved an IED carried on a tanker truck of chlorine, effectively "unzipped" the tank, but failed to create a large cloud of chlorine gas. In contrast, two later attacks produced more chlorine-related injuries (but fewer explosive-related injuries). The two C-VBIED attacks in late February used the suicide/homicide bomber delivery system.

Precursor, Harbinger, and Warning

The lesson for U.S. first responders is that the nation's emergency services personnel across all disciplines need to become much more familiar with the physical characteristics as well as physiological signs and symptoms that result from the presence of chlorine gas. The combination of explosive-related injuries resulting from blast pressure, fragmentation and dust inhalation, and chemical exposure can generate confusion both in the triage phase of a mass-casualty incident and in the initial on-scene management of first-responder units. A failure to quickly recognize the indicators of a chemical attack, therefore, may easily lead first responders to erroneously assume that the incident scene is the result of a "simple" explosive detonation event. When that happens, the first responders themselves are likely to become additional casualties, causing even greater chaos at the scene of a mass-casualty event.

Chlorine is a chemical that is most commonly used in treating and purifying water; it also is a relatively low-tech chemical warfare agent that was widely used as a weapon in World War I. In the catalogue of chemical agents, chlorine is described as a choking agent. The release of chlorine gas often produces a greenish-yellow vapor cloud. Chlorine gas concentration is greater in low-lying areas. Its odor is pungent and distinctive, and spells something like bleach. Exposure results in respiratory distress caused by irritation and often damage to the victim's lungs and nostrils.

Among the most common symptoms caused by chlorine gas are coughing, gasping, shortness of breath, and pain in the mucous membranes and lungs. Victims often complain of feeling like they are suffocating. Depending on the length and concentration of exposure, pulmonary edema (fluid in the lungs) may result. Extreme exposure can lead to death. Airborne concentrations of as little as two parts per million can be fatal in less than a minute. The first and most important treatment measure is to remove the patient from the chlorine-contaminated environment. Decontamination procedures coupled with oxygen therapy are the standard care prerequisites for the stabilization of patients prior to their transport to a medical facility. Long-term complications are rare in victims surviving acute exposure to chlorine inhalation.

The Indicators of Armageddon

Pre-C-VBIED attack indicators are similar to those postulated when other explosive devices are used. Surveillance operations, reconnaissance and intelligence gathering, and attack "rehearsals" of some type are among the possible indicators to watch for. Attacks using chemical agents are less effective in an outdoors environment, where the agent is more easily dispersed and large concentrations are rapidly reduced. Terrorists also must consider many additional factors in planning an effective chemical-based attack (as compared to a conventional bombing incident). However, the chemical attack, although often less effective in producing casualties, does pose a greater impact on the psychology of the target population.

As emergency-services and homeland-security personnel, U.S. first responders must recognize that the steady increase in the use of chemical-based weapons in terrorist attacks overseas is a likely precursor of similar attacks throughout the United States as well. As a proactive measure that would make it more difficult for terrorists to acquire the raw materials they need to build chemical-based weapons, the nation's law-enforcement and first-responder communities must safeguard the common industrial chemicals that can be stolen or diverted from legitimate uses to become a terrorist weapon. Increased training on chemical threat response and on personal protective measures, in both the public and private sectors, also is needed. Emergency services personnel should personally commit themselves to maintaining their personal protective equipment, and to training while wearing it, in a broad range of possible attack situations.

Realizing the nature and destructive potential of chemical-based attacks, communities across the country also should participate in emergency exercises simulating real-world attack scenarios such as multiple C-VBIED attacks carried out almost simultaneously in the same community. Those exercises should include governmental and non-governmental participants appropriate both to the locality and to the exercise scenario. Even discussion-formatted exercises on such attacks not only would greatly benefit business and commercial districts but also improve community-based interaction with the governmental emergency services community.

To summarize: the steadily increasing threat of chemical-based attacks on U.S. soil is now a real and present danger. Most of the "solutions" needed for preventing, defeating, mitigating, and managing these threats are locally based. At the local level, American citizens themselves can and must strive to deny terrorists access to weapon components, disrupt their planning, prevent or defeat any attacks launched, mitigate the destructive and psychological effects of the attacks, and, as rapidly as possible, restore their community's sense of stability and continuity.

Joseph Steger is the pseudonym of a senior law-enforcement commander whose undergraduate background in a pre-medical program led to initial certification as an EMT in 1981. He retained that level of certification for eight years and across three states while serving as a federal law-enforcement officer. Over the years, Steger has worked closely with CONTOMS-trained tactical medics and physicians in numerous situations.

Hospital Evacuation: Planning, Exercises, and Common Sense

By Joseph Cahill, EMS

The emergency plan is a critical component of any exercise program, without which the exercise tests the individual's reactions and knowledge, but not the *system's* response. Failing to understand this, or ignoring it, continues to make exercises little more than shams in which the most experienced employees or leaders produce positive results, and that in turn creates a comfortable fiction of preparedness.

All effective exercises are based on a written plan, followed by training of the staff involved in the plan – specifically including management-level decision makers, the staff on the ground that do the work, and backup personnel. An exercise can be evaluated in terms of the overhead expenses such as overtime or consumables and/or the visibility to the patient population.

That general statement does not always apply, though, to hospital evacuation exercises, which are difficult to carry out in real time – for a variety of reasons. One of the principal reasons is that market forces have pushed hospitals over the last several decades to become leaner, so there is very little if any "extra" staff and resources to use for an exercise.

In addition, because real life continues even during an exercise, patients continue to expect the same type and quality of care they have become accustomed to. This creates another problem for the hospital – namely, how to demonstrate the ability to stop work and move patients, hospital beds, and various medical systems without *actually* stopping the real work going on or subjecting the real patients being cared for to the strains, stresses, and risks of being moved to another ward or another hospital.

The Ideal vs. the Real

In some ways, the ideal is the full-scale exercise, conducted in real time using the real personnel and other resources that would most likely be available during an actual emergency. Unfortunately, such ideal exercises are rarely carried out to the extent desired, primarily because of the high overhead costs that would be generated. Moreover, despite the understandable desire not only to demonstrate competence but also to do it as quickly as possible, a basic rule applicable to all exercise programs is that to be effective they must start both simply and build in complexity. In the medical field, regrettably, new programs start out all too often with full-scale exercises which the staff is not adequately prepared for, and end almost inevitably in frustration and finger-pointing.

In the medical field, new programs start out all too often with full-scale exercises which the staff is not adequately prepared for, and end in frustration and finger-pointing

Much of the impatience is fueled by: (a) the accreditation regulatory process mandated by the Joint Commission for Health Care (JCHCO); and (b) grant deliverables that require full-scale exercises of plans without allowing for differences from one agency to another in their ability to reach various levels of completion in the planning and training process.

Independently of any grant process, the Department of Homeland Security (DHS), through its Homeland Security Exercise Evaluation Program (HSEEP), has been promoting a "building block approach" to the planning of exercise programs. That approach starts with a firm foundation of planning and training and builds up from there with discussion-based exercises such as tabletop exercises (TTX), ending finally with operations-based exercises such as the full-scale exercise (FSE) described earlier.

The tabletop exercise can be used to test the decision process by presenting the TTX participants with a scenario to work through in a conference room setting. The advantage of this type of exercise is that it is independent of real time and can be stopped for discussion. Moreover, it has a low overhead and for all practical purposes is invisible to the hospital's patient population.

When the participants naturally relate to the scenario the focus moves from discussing the details of the scenario to determining the actions to take, deciding who has the authority to take specific actions, recognizing what the trigger points are for those actions, and agreeing on how those actions will be executed.

Beware of the Overly Dramatic Scenario

Any scenario that would force the hospital to evacuate a section, or even the entire hospital, can be used. One cautionary note, however: It is important to stay away from the obscure albeit exciting scenarios so frequently discussed in the popular media – an anthrax attack, for example. That may well be the topic of the day, and would certainly gain a lot of public attention. But the participants in the exercise will relate quickly and more easily to a simpler and much more likely scenario – e.g., severe weather, a fire, or the loss of electric power.

Anyone doubting this thesis should remember that the children from a school in the shadow of the World Trade Center on 9/11/01 were able to evacuate the school safely because they had practiced so many fire drills during school hours that they and their teachers knew exactly what to do.

Lacking the budget, and the time, needed for full-scale exercises, many hospitals and other medical facilities improve their capabilities one small step at a time by exercising various *components* of an emergency plan. In a simulated hospital evacuation, for example, communications capabilities could be exercised by creating and promulgating a test message and timing the replies. This simple

exercise has a low overhead because it would require little if any overtime work, and has low visibility to the patient population.

Other component tests might be to set up the facility expected to receive the patients being evacuated and to care for a number of mock patients. Both of these tests would have a higher overhead, though, because real employees would be needed to set up and staff the facility, and mock patients would have to be provided. Some colleges and universities, and other civic and emergency organizations, probably could be tapped to provide the "patients," but anything more than that might be too ambitious – and too costly as well.

Numerous Complications, But Other Options Available

By far the most difficult aspect of such an exercise, though, would be the actual movement of mock patients from one facility to another. There is no simple low-cost way to carry out that part of the exercise. Perhaps the only viable strategy for most facilities, in fact, is to carry out a "sample" evacuation – by moving patients from one floor of the hospital or one group of rooms to another. Fortunately, this process often could be carried out, even if there were no or only a few vacant rooms available, by putting the mock patients on stretchers or in wheelchairs in the hallways of the floor being evacuated.

There are several complications involved in this plan as well, however. It would have a high overhead because of overtime work for the staff involved and, because the mock patients would be in the same area of the hospital as the real patients, there would be added security and confidentiality issues to deal with. In addition, the congestion in the hallways and the decreased availability of stretchers and wheelchairs would be highly visible to the real patient population.

There are other exercise and training options available to hospital planners and administrators that are frequently ignored. One option is to always document real events as exercises. The JCHCO rules mentioned earlier and most grants explicitly allow for this, and these "real events" provide a high percentage of the always limited opportunities available for a hospital to "exercise" all of its real resources in real time. There also are certain occasions to test evacuation plans in real time. Renovating or painting a section of the building, for example, may offer an opportunity to exercise the hospital's evacuation program by moving patients to another part of the building rather than to an off-site location.

In accordance with the truism that no exercise or operation is complete until the paperwork has been done, all of the data, comments, and observations collected in the course of any of the exercises carried out should be incorporated into a revised and improved emergency plan, thus satisfying the ethical if not grant-driven or legislated requirement for staff input.

Joseph Cahill is currently a Medico legal investigator for the Massachusetts Office of the Chief Medical Examiner. He also worked as the Exercise and Training Coordinator for the Massachusetts Department of Public Health – Center for Emergency Preparedness - and as an emergency planner in the Westchester (NY) County Office of Emergency Management, and served as a line Paramedic for over ten years in The South Bronx and North Philadelphia.

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Changing the Rules:

First-Responder Data Communications Tools Make an Impact

By Rodrigo (Roddy) Moscoso, Law Enforcement

Since the deployment of the first mobile computers in police cruisers more than 20 years ago, the ability to access and exchange information between first responders in the field and their dispatch centers has grown steadily. Of course, early mobile technology involved customized hardware and software that was limited in scope and function. However, the benefits of accessing criminal justice data remotely proved immediately valuable to law enforcement. In the 1980 movie, *The Blues Brothers,* "Jake" and "Elwood" learned this lesson the hard way after being pulled over by a police car equipped with the "State County Municipal Offender Data System," also known as "SCMODS."

In the almost 30 years since then, mobile data-access systems – particularly those that are now standard equipment in most police vehicles – have greatly enhanced the ability of law enforcement personnel to identify wanted persons, stolen tags, and vehicles, and to obtain a broad spectrum of other information that helps them better and more quickly respond to the myriad situations they may encounter in the field.

For many years, most of the information exchanged has been one-way: from the center to the field users. Although CAD (computer-aided dispatch) technologies have long enabled responses to centers from the field, a high percentage of this type of "communication" was nothing more complex than the acknowledgment of assignments via a push-button interface. However, over the past five years the advent of high-speed wireless data networks, combined with the increased availability of more generic PC-based mobile computers, has significantly extended the boundaries of what is or soon will be possible with the massive increase in mobile computing capabilities among first responders.

Also Featured: A New Generation of Users

Customized CAD software remains prevalent, but the standardization of hardware, coupled with the increased ease of network access, has quickly led many first responders to reinvent how they use their mobile computers. And one of the newly available capabilities now coming to the fore is live data communications.

The benefits flowing from a major increase in data communications capabilities should be readily apparent to anyone who has ever used instant messaging software. Those benefits become even more evident when one considers that the latest generation of first responders has grown up with this technology and is already comfortable navigating multiple, simultaneous IM sessions, often cutting and pasting data across chat windows. This type of communication and data sharing is not possible via voice communications alone and therefore "speaks" to the power of the new communications systems already or soon to be coming on line.

The bottom line here is that, although first-responder technology has arrived relatively late to the data communications party, the capability is now here and is becoming increasingly ubiquitous as well as more accessible with the deployment of each new mobile data system. Moreover, it seems probable that, as time passes, more and more first responders will report in for their first day on the job immediately able to take full advantage of these tools.

One key question lingers, though: Namely, how should the new officers on patrol best use the new systems to enhance their operational effectiveness? Many agencies have introduced this new capability, but have provided only limited guidance to either govern or facilitate its use. This is not entirely surprising, given that the capability is so new and the means for first responders to best exploit that capability are still somewhat speculative at best. However, there are certain incremental steps that could and should be taken to achieve specific operational objectives through use of these new communications tools.

Simplicity, Security, and Safety

A good start would be to identify how, given their differentiating capabilities, data communications systems can specifically complement traditional voice/radio communications. Inherently, data communications provide greater information clarity: The letter "B" is just that, for example – a "B." There is no need, therefore, to say "Bravo" to ensure that the recipient does not mistake the "B" for a "D" or a similar-sounding letter.

Data communications are also more secure – would-be eavesdroppers cannot simply buy a Radio Shack scanner to tap into first-responder chat rooms. Moreover, unlike traditional radio, conversations can be one-to-one or one-to-a-select (but identifiable) many. Finally, the data provided is persistent. There is no need to ask, "What did you say?" The only thing needed is to "scroll up" to the information already provided.

With the unique capabilities of data communications in mind, law-enforcement agencies can begin to better exploit the new technologies now available to directly enhance both their field operations and communications within the agency itself. This probably would be most effectively accomplished through the development of standard operating procedures (SOPs) and some carefully designed performance metrics. The guidance provided would be crucial to ensuring consistent and regular use of this new and powerful communications channel.

Initially, any new procedures developed probably should focus on internal communications. However, this would be only a temporary stop on the way to even greater communications capabilities in the very near future. Today, more and more data messaging tools are becoming available that are enabling communications across various jurisdictions, disciplines, and levels of government. The rules of engagement across these domains probably will take a bit more time to discern, but there is little doubt that the end results will be well worth the wait.

Rodrigo (Roddy) Moscoso currently serves as Communications Manager for the Capital Wireless Information Net (CapWIN) Program at the University of Maryland. Formerly with IBM Business Consulting Services, he has over 15 years of experience supporting large-scale IT implementation projects, and extensive experience in several related fields such as change management, business process reengineering, human resources, and communications.

Sheltering Against the Ultimate - A Nuclear Detonation in a U.S. City

By Kirk Paradise, Public Health

Should terrorists detonate a nuclear weapon in a major city, tens, perhaps hundreds, of thousands of people might die from the direct effects of heat, blast, and the initial nuclear radiation. Beyond Ground Zero, thousands of others could be at risk of death from *fallout* radiation. In the chaotic aftermath of such an event, in fact, there would be only two survival options for those not killed immediately: get out of town as quickly as possible, or take shelter – but it is unlikely that all could flee. For those in the fallout area, it is imperative that action must be taken almost immediately – within a matter of minutes, preferably.

Regardless of how much (or how little) time is available, taking shelter from fallout radiation is essential; fortunately, such action is known to be extremely effective in preventing injury, specifically including long-term debilitating illness, from radiation. But, to be effective, fallout shelters must be prepared beforehand and, of equal if not greater importance, shelter management teams must be created, and trained.

Fallout lofted into the atmosphere may reach as high as 30,000 feet, and could be carried off in two or three directions, at different strata and at different speeds. Moreover, exposure rates – where twice the median lethal dose may be received in just a single hour – may extend over several hundred square miles within a few hours. Intense radiation could cover a thousand square miles within 24 hours. The lethal exposure of literally hundreds of thousands of people, perhaps a million or more, is possible in the East or West Coast urban corridors of the United States.

Invisible Assets Are Already in Place

Fortunately, and surprisingly as well, in these same areas and within easy driving (and/or walking, in downtown areas) distances are large numbers of fallout shelters, previously built, which range in size from a 50-person capacity upward. Many if not most are government buildings – schools and courthouses, for example – but a fairly high percentage are owned by private-sector businesses or agencies, or by individual citizens. These so-called "relics of the Cold War" still exist in almost every county in the country, in fact, and in most if not all areas of the country their protective capabilities remain intact. Although not currently part of the DHS (Department of Homeland Security) strategy to protect people, they could be revitalized in short order and be used to attenuate radiation intensity.

To test this hypothesis, Huntsville, Alabama, started a revitalization of its fallout shelter program in 2005 under a Metropolitan Medical Response System grant provided by the Department of Homeland Security. Using a list of fallout shelters compiled by FEMA (the Federal Emergency Management Agency) several years ago, a number of shelters providing the best protection were selected, in 2005 and 2006, by the Huntsville-Madison County Emergency Management Agency for further evaluation. Using such criteria as building capacity and the quality of protection that could be provided, as expressed by a numeric "Protection Factor" scale developed by FEMA, officials contacted the owners of a number of the buildings evaluated and asked them if the buildings could be further evaluated for use as public fallout shelters. Over 100 owners agreed; only about 10 declined.

Most of the owners also agreed to send representatives to participate in a fallout-shelter management course. This was a significant step forward, because successful sheltering is more than just bricks and concrete. It means taking frightened people – rudely gathered together under the worst of circumstances and confronted by fears of the unknown – and organizing them into teams capable of group survival. In that context, the shelter is just a tool; the main task of the shelter manager is to gain psychological control of people, reassure them of the shelter's protective qualities, and organize them into self-help teams.

Following the Huntsville Example

To accomplish that important goal, a fallout shelter management course and a fallout shelter managers' guide were developed by the Huntsville-Madison County EMA. The course informs people about the dangers of fallout radiation and explains how shelters protect people, and how to organize and direct people to survive. In January 2007, 78 persons completed the eight-hour course. Four sessions were held in Huntsville under the auspices of the Huntsville-Madison County EMA.

Thirty new shelters were added to the list in 2006 to accommodate areas of Madison County where the population has grown significantly in recent years. A civil engineer from the University of Alabama in Huntsville, using FEMA methods developed in the 1970s, identified the protective space that could be used in buildings not available when the original inventory of fallout shelters was developed.

Other cities and counties can revitalize their own fallout-shelter programs – and would be well advised to do so. The lists of fallout shelters, last published by FEMA in 1992, still exist and are available on request to state and local authorities. Those other cities and counties can follow the same process used in Huntsville: identify potential shelters; obtain signed agreements from the current owners of the shelters; recruit shelter managers and shelter management teams, and train them; and make fallout shelter management courses available to the general public as well.

For additional information:

On the Fallout Shelter Managers' Guide, the Fallout Shelter Management Course as Micro Soft Power Point slides, and related information, see http://www.madisoncountyema.com/Fallout.html

On sheltering and evacuation, see: http://www.ready.gov/america/_downloads/nuclear.pdf

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Kirk Paradise serves as the emergency plans coordinator for the Huntsville-Madison County, Alabama, Emergency Management Agency. His primary task is to track all of the plans and procedures the agency is involved with and to ensure they are updated and distributed to the using agencies. He also is the county radiological officer and shelter officer, and assists in training as a radiological monitor instructor. He has worked for the agency since 1979 and has prior experience as a disaster preparedness officer in the U.S. Air Force.

A Helping Hand From Fire Departments?

How to Expand the EMS Talent Pool

By Glen Rudner, Fire/HazMat

In planning for large-scale terrorist incidents, U.S. decision-makers at all levels of government – local, state, and federal – must consider, among other things, how to triage and transport the maximum number of casualties at the incident scene with the probably limited assets available. Many first-responder agencies already keep emergency medical services (EMS) personnel on duty 24 hours a day.

Nonetheless, there seem to be never enough EMS units or emergency-medical technicians (EMTs) on duty to handle the number of calls that occur on a typical day. Complicating this already difficult situation is that there has been a growing, but probably unintentional, tendency to rely on mutual-aid contracts with neighboring communities to meet the daily shortfall of EMS units and EMT personnel. Even with additional units being stood up, though, overall preparedness still seems to fall short in far too many jurisdictions throughout the country.

Partly for that reason, many foresighted communities have resorted to integrating their fire departments and EMS units in various ways to provide a more seamless response to major incidents that cause a large number of casualties. This combining of scarce talent with already well-trained personnel enables the community's fire departments to use their engine and truck companies to assist EMS units by providing additional staffing that may include EMT-trained personnel and, frequently, drivers as well.

Florida and California Have the Bright Idea

One idea that has demonstrably helped many communities is to use firefighters as paramedics in certain situations. During several major natural disasters that have happened in Florida and California in recent years this concept was used to good effect and helped significantly in reducing the number of deaths and injuries resulting from those disasters. During Hurricane Andrew, for example, a number of fire stations became mini-MASH units, for all practical purposes, for the communities affected.

The concept of combining paramedic care with the quick-response capabilities of the fire services continues to prove its effectiveness each day. Not only is on-site medical care initiated more quickly by paramedic-staffed engine and truck crews but the continuum of care is complete from the initial assessment of injuries to the delivery of victims to the emergency department of a hospital or other medical facility.

When they are fully equipped and fully staffed for such contingencies, paramedic-capable engine and truck companies provide a more cost-effective way to deal with a large number of casualties than adding more ambulances to increase and improve overall EMS capabilities. To begin with, instead of purchasing and staffing more ambulances, many communities can use existing (and already paid for) vehicles more efficiently by adding a paramedic to serve on the fire department's engine and/or truck companies; this option could be implemented for only about one tenth of the cost that would be incurred by outfitting an additional EMS unit.

Costs and Benefits, Pros and Cons

A growing number of cities throughout the United States have been strongly advocating the paramedic-engine concept for several years, and a number of other cities have implemented similar programs when faced with an increasing number of EMS calls and, in some communities at least, a decreasing number of fires.

Another factor to consider is that many paramedic-staffed engine and truck companies already are dispatched to incident scenes for the sole purpose of decreasing the response time required to transport sick or injured victims to hospitals or other medical facilities. The vehicles used must, of course, be outfitted with various medical systems, devices, and equipment such as cardiac monitor/defibrillator systems, oxygen tanks, intravenous fluids, medicines and medications of various types, and even child-delivery kits.

Another idea that has helped augment, improve, and expand EMS response capabilities is the requirement in many communities that all firefighters be EMT-B trained. This is probably one of the most important changes, in fact, that have occurred in the EMS field in recent years. The benefits that flow from having a higher EMT level of training available within the fire service itself also have made the preparation and planning for mass-casualty incidents more flexible to some extent. With more and better trained personnel available to call on, it is much easier for a community's administrators and decision makers to expand EMS on-site capabilities during large-scale disasters and catastrophes.

To summarize: The use of fire departments and fire-service personnel to augment overall EMS capabilities in times of crisis has been an ongoing trend for several years. But the question remains: Is that enough? There still are too many communities throughout the country that have *not* embraced the idea of using these highly skilled and well trained personnel to the fullest extent possible. (It is recognized, of course, that training firefighters who are interested primarily in fighting fires to also be able to serve as EMTs and/or paramedics presents a difficult cultural challenge, but that is a different type of problem, and not insurmountable.)

In the final analysis, it seems clear that, when all of the factors pro and con are taken into consideration, today's fire-service personnel could, should, and must be multifunctional in their capabilities. When large-scale mass-casualty incidents do occur – the usual qualification stated is "not if, but when" – the only way that many and perhaps most U.S. communities will be able to cope with them is to ensure that as many first-responder personnel as possible are trained in more than one discipline to meet the multifaceted challenges they will be facing.

Glen D. Rudner is the Hazardous Materials Response Officer for the Virginia Department of Emergency Management; he has been assigned to the Northern Virginia Region for the last nine years. During the past 25 years he has been closely involved in the development, management, and delivery of numerous local, state, federal, and international programs in his areas of expertise for several organizations and public agencies.

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Systems and Solutions – The Gateways to Interoperability

By Gary S. Simpson, Law Enforcement

The terrorist attacks of September 11, 2001, brought to light, in stark reality, one of the greatest problems facing public safety entities around the world – communications interoperability. Since 9/11 many jurisdictions have spent millions of dollars to upgrade communications systems with features that are designed to improve their ability to achieve that desired interoperability. Moreover, radio equipment manufacturers also seem to be speeding new equipment models to market with many high-tech features, and interoperability systems manufacturers also have rushed new products to the marketplace.

But with all the new products and systems hitting the market has real interoperability been achieved? The answer is both "yes" and "no." "Yes," because it is evident that systems can be made to talk to one another – and they are doing so with greater ease than ever before. But also "No," because in many cases those systems require expensive intermediate solutions (also known as gateways). W. Christopher Boyd, communications architect for Maryland-based systems integrator Incident Communications Solutions (ICS), said in an interview that interoperability solutions "are not necessarily interoperable with each other" – meaning that it may take more than one "gateway-type device" to link two disparate systems.

This cautionary note further complicates the issue of interoperability and adds both human and mechanical points of failure to an already complex situation. Moreover, because many agencies are solving their own interoperability needs at the agency level, the "interoperability gateway" of one jurisdiction may not be able to "talk" to a different type of system in another agency or neighboring jurisdiction – and, in fact, might actually prevent incorporation of some of the advanced features that many end users rely on. The same complication forces agencies to take a holistic view of the entire communications structure not only within their own agency but also within those agencies that border it either geographically or operationally. Many agencies are not currently able or willing to support that activity.

The Cellular Phone Protocol – A Viable Example?

APCO, the Association of Public Safety Communications Officials, working in close cooperation with Project SAFECOM (the communications program of the Department of Homeland Security's Office for Interoperability and Compatibility, or OIC), has been trying to create, among other things, a standard communications protocol. The adoption of such a protocol would provide standard communications interoperability across most if not all platforms, and would allow the equipment of all system manufacturers to be interoperable with one another.

> ***The "interoperability gateway" of one jurisdiction may not be able to "talk" to a different type of system in another agency or neighboring jurisdiction***

Stephen P. Morgan, president of Incident Communications Solutions, likens APCO's approach to the creation of a standardized protocol for the use of cellular telephones. "No matter which cell-phone vendor a customer uses," he points out, "it will communicate with any other cellular phones and landline systems. This same versatility needs to be applied to Public Safety Communication Systems."

With jurisdictions purchasing new state-of-the-art radio equipment featuring such innovations as an over-the-air reprogramming capability, users might reasonably expect that those functions will be available to them regardless of the other factors involved in a specific incident. This is where the plot turns. Because of the disparity in manufactured radio equipment, end users may well lose, during a major event, some if not all of the high-tech functionality that makes a particular radio system attractive to them. Although these devices have made some important strides toward interoperability, the integration of interoperability gateways into a system brings with it a double-edged sword. One edge is the fact that the gateways do create other potential points of failure; another is that they require the end user to remember what features do *not* work when the gateway is operational. But, because the cost of buying new radio equipment is so astronomical, gateways are likely to remain necessary pieces of the overall interoperability puzzle for the foreseeable future.

Morgan also says that jurisdictions "need to have a clear understanding of what they need and what they are trying to accomplish, before venturing into the 'gateway' marketplace." For example, when considering an attractive new feature such as encryption, departments should make hard decisions about whether or not such a feature is both: (a) cost-effective; and (b) a valuable asset during a disaster mobilization when other jurisdictions are participating in the same event.

The Cost Factor And Other Complications

Some radio features can add hundreds of dollars to the cost of individual mobile and portable radios and thousands of dollars to the total cost of radio systems. Agencies need to ask themselves, therefore, if – while operating in an encrypted mode, for example – their communications will span disparate radio systems, including those equipped with gateway solution features. If so, agencies need to be aware that their encrypted radio traffic may *not* be encrypted when it is passed, via a gateway, to a system that does not support encryption.

Today, special features in radio systems are passed in "sub-audible" tones. These tones, although they cannot be heard by the human ear, are picked up by the radio to control the special features. Each manufacturer handles the "sub-audible tone factor" differently, and

this could cause difficulties in passing at least some of the sub-audible tones required for special features.

Morgan Wright of Cisco Systems suggested in a telephone interview that public safety agencies should adopt the principle of "Operability *Before* Interoperability." This means that agencies should consider filling their basic needs before seeking interoperability solutions. The concept is simple: If a communications system does not routinely provide the basic functionality needed during a disaster, interoperability solutions will not enhance the capabilities of that system. In other words, a gateway will not provide any increase in functionality beyond what is already present in the system, except to allow more users to talk to one another. So the question becomes whether the basic functionality of a radio system meets the needs of the end user during day-to-day operations *and* during major events.

Major Concerns for Radio And Gateway Purchasers

Wright also suggested that some of the jurisdictions that were offline during Hurricane Katrina did not have enough redundancy built into them, and thus were not able to provide even a basic communications capability. Consequently, interoperability solutions would have done them no good. In short, although building in redundancy can be an expensive proposition, another basic question must be asked before making a decision based on that factor alone – namely, what is the cost of being offline until an agency's or jurisdiction's system can be redesigned and manufactured? The answer to that question is especially important for what are called Public Safety Answering Points (PSAPs). Planning also should take into consideration such related factors as system capacity and capabilities.

Morgan said he sees three situations in which redundancy and resiliency are critical: (1) When there is no infrastructure or it has somehow been destroyed; (2) When the capability of a system has been degraded; and (3) When the system's capacity has been exceeded or saturated.

The key to "true interoperability" is using a standards-based approach that allows disparate systems – not only voice, but data as well – to flow between systems in a structured and well defined manner. Morgan and Wright both said they believe that the adoption of a standards-based Internet Protocol (IP) would be a large part of the answer for the foreseeable future. A well-crafted IP would allow audio, video, and signals communications across a broad spectrum of IP-based platforms (telephones, cell phones, PCs, and/or network systems). By using the IP protocol, systems could be built with COTS (commercial off-the-shelf) equipment components, thus reducing the importance of the difficult cost factor. In addition, the standardized IP protocol would encourage more competition among vendors, making it possible for purchasers to shop for exactly what they need, rather than basing their purchase decisions on cost and related factors rather than operational needs.

The First Regional IP-Based System

In October of 2006, M/A COM Inc., a subsidiary of Tyco Electronics, installed Phase I of a new P25-compliant [P25 refers to the public safety standards established for digital equipment and systems] IP-based radio system for the Department of Defense (DOD) in the National Capital Region (NCR). The new DOD system – which supports 5,000 federal-agency personnel and has been expanded to include 58 NCR public safety agencies at an estimated cost of about $4.5 million – should reduce if not eliminate the need for at least some interoperability gateways; moreover, by using the M/A COM radio system special features such as encryption and remote reprogramming can remain fully functional during major incidents or events.

The question remains, though, whether the NCR's new IP-based system will improve the region's interoperability with non-NCR first responders – or, if not, whether other jurisdictions will be required to upgrade to IP-based systems in order to be able to operate routinely with the NCR on a daily basis. This question becomes particularly important when one reviews the communications shortfalls in major disasters such as Hurricane Katrina and the 9/11 attacks, in both of which responders from throughout the country were called upon to provide assistance.

One very impressive cost figure frequently referred to when discussing the cost of achieving interoperability is $18 billion, a number projected in the 1998 PSWN (Public Safety Wireless Network) program's Land Mobile Radio Replacement Cost Study. That estimate includes the cost of replacing a huge number of radio systems across the country – but it does *not* include the cost of unexpected issues and problems that are likely to arise,

such as resolving interference and perhaps saturation issues.

How to Get There from Here

On 18 July 2007, Commerce Secretary Carlos M. Gutierrez and Homeland Security Secretary Michael Chertoff announced the creation of a Public Safety Interoperability Communications (PSIC) grant to help state and local firefighters, police, and other first responders improve the communications and coordination capabilities they would need during both natural and manmade disasters.

The key point to remember about this new $968 million funding stream is that it is intended to meet a "one-time" need. However, if the $18 billion PSWN estimate mentioned earlier is reasonably accurate, the $968 million PSIC grant would be a mere drop in the bucket. So yet another question arises: Where will local agencies get the additional funds they would still need?

The P25 and similar IP-based protocols currently represent one of several more or less viable long-term solutions to the interoperability issue. However, the cost of shifting all of the nation's first responders to P25 or IP-based radio systems prohibits this solution from being a viable option for the near future.

At least some quick-fix interim solutions *are* possible, though, and would likely include a combination of new radios, gateway devices, and tactical bridges such as the ACU-1000 Modular Interconnect System, the Incident Commanders Radio Interface (ICRI), and/or the Motobridge IP Interoperable Dispatch Application. In addition, a functional national channel management plan is necessary to accomplish true national interoperability.

Gary Simpson retired as a 32-year veteran with the Annapolis Police Department. When he retired he was hired back as the Emergency Management Director for the City of Annapolis. Two years later, Gary shifted back to the police side as Director of Domestic Preparedness. While with the Annapolis Police Department he rose to the rank of Captain. Gary has served in CID, the Arson & Explosives Unit, Public Affairs Unit, Patrol Operations, Special Operations, SWAT, White Collar/Fraud Crimes Unit, and Communications Unit. His current mission includes anti-terrorism planning, technology management, and intelligence operations for the police department.

Doom, Death, & Destruction

The "Doctors Plot" – Its Implications for America

By David Wright, Viewpoint

A doomsday clock has been used since the late 1940s to express the risk of destruction posed by a global nuclear war. If a similar clock were used today to show the threat posed by a terrorist attack in which biological agents were the weapon of choice its hands would surely have inched much closer to midnight as a result of the so-called "Doctors Plot" – i.e., the terrorist attacks in the United Kingdom earlier this year that allegedly were orchestrated and carried out (not very successfully) by a group of physicians and an engineer.

According to British authorities and media reports, the doctors involved in the plot packed a Mercedes Benz with gasoline cans, propane tanks, and nails, then parked it outside the Tiger Tiger nightclub in Central London. They apparently planned to detonate the device remotely by cell phone. The doctors also intended to explode a second bomb, after the first emergency personnel arrived on the scene, that had been loaded into another Mercedes Benz parked not far away on Cockspur Street

The triggering mechanisms on both bombs failed. However, the doctors quickly put into motion yet another attack, crashing a gasoline-filled Jeep Cherokee into the Glasgow airport.

An Erroneous And Outdated Assumption

Security experts have downplayed the incidents to some extent, labeling them amateurish. But that assessment misses the mark. The Doctors Plot is *extremely* significant because, if nothing else, it signals a significant evolution in the tactics of terrorism.

Historically, most doctors belonging to and/or leading terrorist organizations have filled leadership positions. Among the most prominent examples are Osama bin Laden's deputy, Ayman al-Zawahiri, a Cairo-trained pediatrician, and Dr. George Habash, founder of the Popular Front for the Liberation of Palestine. What the U.K. Doctors Plot reveals is that physicians and engineers are now not only moving into the front ranks of terrorist groups but also are both able and willing to carry out attacks on their own.

It is no stretch of the imagination to assume that some of these doctors will eventually graduate from the building and deployment of vehicle bombs to the development and use of biological weapons. Most physicians, of any nation, are high academic achievers who possess a working knowledge of microbiology. Most of them also have money and, of perhaps greater importance, access to the research equipment and pathogens needed for the creation of biological weapons. Like other professionals, many doctors who were born or raised in the Islamic world not only speak English but also can travel freely. In other words, they have no intellectual, financial, or technical barriers to overcome to develop a bioweapon.

> ***The Doctors Plot is extremely significant because, if nothing else, it signals a significant evolution in the tactics of terrorism***

Some analysts have argued that the threat of a biological attack carried out by terrorists is exaggerated because most rank-and-file terrorists do not have sufficient capabilities in the biological sciences to develop such weapons. Thanks to the still unfolding revelations of the Doctors Plot, that view can no longer be maintained.

Cryptic Communications But a Credible Message

It is as yet not known whether the terrorist doctors in the United Kingdom were acting independently or had links to al Qaeda (or another terrorist organization). Hours before the London strike, though, an unidentified message was posted on a website frequented by al Qaeda that announced, "By Allah, London shall be bombed." Authorities also reportedly received a cryptic communication from an al Qaeda source in Baghdad that warned "the people who cure you will kill you."

Unlike the homegrown suicide bombers who detonated the bombs on London's subway and bus system in 2005, the physicians in the Doctors Plot are foreign-born and/or lived most of their lives outside the United Kingdom.

Ed Husain, a former Muslim extremist and member of Hizb ut-Tahrir-a, a global Islamic political party, said that no one should be surprised that Islamic doctors and engineers might also be terrorists. Becoming a doctor or engineer is the only way for many Arab students to please their parents. While most such students ultimately become professionals in whatever field they choose, many are later disenchanted and are drawn to other interests – including, perhaps, terrorism.

Bilal Abdullah, one of the physicians involved in the Doctors Plot, has been described by his friends as a "reluctant doctor" who pursued a career in medicine only because his father, a top Iraqi surgeon, wanted him to do so. Bilal attended elite schools in Iraq and graduated at the top of his class.

Another member of the Doctors Plot, Kefeel Ahmed, is an engineer. Both of his parents are doctors. He was an exceptional student who placed fifth overall at the university he attended in Bangalore, India. Dr. Mohammed Asha, apparently the ringleader of the Doctors Plot, finished third overall in Jordan's science testing and was awarded a full medical scholarship to attend the University of Jordan. He graduated with a perfect 4.0 grade average.

"Sparing No Effort" Vs. Chronic Unpreparedness

In short, the terrorists involved in the Doctors Plot are among the best and brightest minds in the Arab world. It is almost certain that there are others who are acting independently or have been recruited by al Qaeda – which, according to former CIA Director George Tenet, has "spared no effort in its attempt to obtain biological weapons."

America is still woefully unprepared for a bioweapons attack, the most likely of which would be with anthrax. Such a strike, properly executed, could kill tens of thousands and cripple the U.S. economy. To develop a new vaccine, it has been estimated, would take five years, and perhaps longer. A minimum of two to three years would be required for other medical countermeasures to be put in place.

All of which brings up a question of terrifying magnitude: Is there enough time left before the new doomsday clock strikes midnight?

David P. Wright is president & chief executive officer of PharmAthene Inc., a private-sector pharmaceutical company headquartered in Annapolis, Md. Prior to joining PharmAthene, in July 2003, he served as president and CEO of GenVec Inc., and before taking that post was president and chief business officer of Guilford Pharmaceuticals. He served as executive vice president for MedImmune Inc. from 1990 to 2000 and in that position was responsible for building the company's commercial operations and product sales, which grew during his tenure from $0 to over $400 million annually. Wright also has held various marketing and sales positions at such pharmaceutical companies as Smith-Kline & French, G.D. Searle, and Glaxo.

Will NGB Be the Decisive Factor?

National Guard Takes Center Stage in HD/DO Op Orders

By Col. Jonathan Dodson, USA (Ret.), National Guard

Colonel Jonathan Dodson, USA (Ret.), stopped by the DomesticPreparedness offices again to provide an updated briefing on the structure and workings of the National Guard's Joint Force Headquarters – State (JFHQ – State). Following are excerpts from his remarks in response to questions from Managing Editor John F. Morton.

DomPrep: *Colonel, you have been studying the implementation of the National Guard's Transformation Campaign Plan and what it means in terms of the military support the Guard provides to civil authorities and the individual states. Please give our readers a little background here, if you would.*

Colonel Dodson: Sure, John. When General Blum [Lieutenant General H. Steven Blum, ARNG] became Chief of the National Guard Bureau [NGB] in April 2003, he initiated a comprehensive National Guard Bureau Transformation Campaign Plan. The intent of this new NGB plan was, and is, to strengthen the Guard's homeland-defense and domestic-operations – HD/DO – capabilities through initiatives focused on creating a truly Department of Defense *Joint* staff within the NGB that also could provide better support to the individual states and territories.

DomPrep: *What specifically did this mean for the states and territories?*

Dodson: Well, the key was transforming the National Guard headquarters – the old State Area Commands, or STARCs – within each of the states and territories. The STARCs were the 54 NGB headquarters throughout the nation responsible for coordination and integrated communications with all federal, state, local, and civil authorities, including the entire first-responder community. The old STARC headquarters were based on Cold War doctrine – where the National Guard traditionally was viewed as a strategic reserve. General Blum has made the point that the STARC headquarters were designed to mobilize units for what you might think of as the "scheduled away" game. In other words, we were never directly concerned with the "unscheduled home game" – but now we are, of course.

DomPrep: *As the result of 9/11 ...*

Dodson: Exactly. Now, these same headquarters must still provide trained and equipped forces for the Guard's overseas, warfighting, expeditionary missions, but at the same time they now provide timely response assets to federal, state, and local officials. For a state governor – or, as the case may be, for the District of Columbia – the JFHQ-State [Joint Force Headquarters – State] provides command-and-control links for all National Guard forces in a particular state or territory. In that context, the JFHQ-State serves as a joint command-and-control structure in each state and territory that also is integrated into the national consequence-management and contingency-planning structures. The JFHQ-States provide a common operating picture to national-level headquarters before and during any contingency operation and joint reception, staging, and onward movements, and integration for all inbound military forces.

Joint Forces Headquarters - State (JFHQ - State)

Providing Military Support to Civil Authorities
(Title 32 USC State Status)

AND

Defending the Homeland Against Enemy Attack
(Title 10 USC Federal Status)

DomPrep: *Jon, please drill a little deeper into the Domestic Operations aspects of the NGB's new mission portfolio.*

Dodson: For Domestic Operations, capitalizing on this relationship – and employed in a "State Active Duty" status – the National Guard can provide the interface needed between the law-enforcement and intelligence communities. Operating through the State Emergency Operations Centers, the JFHQ-State can provide an information fusion capability for the Department of Homeland Security (DHS) at the local level. This same capability can be leveraged, though, to support NORTHCOM/PACOM [the DOD Northern and Pacific Commands] and the National Command Authority when coordinated through the National Guard Bureau Joint Operations Center either for Domestic Operations or for Homeland Defense.

DomPrep: *But the JFHQ-State configuration doesn't compromise preparedness for the "away game," does it?*

Dodson: No. General Blum has made it very clear that the Guard fights jointly (with all the other services) and therefore needs to train and operate on a daily basis in a joint environment so that it can make that transition very quickly. After all, its [the NGB's] symbol is the Minuteman. This "Initiatives" chart illustrates how the NGB 2003 Transformation Campaign plan established, across the nation, the various entities needed to meet the National Guard's responsibilities to the states. Along with the Joint Force Headquarters State (JFHQ-State), as you can see, you have the Critical Infrastructure Program-Mission Assurance Assessment [CIP-MAA] Teams – formerly FSIVA – the Civil Support Teams or CSTs, the National Guard CBRNE Enhanced-Response Force Package (CERFP), Expeditionary Medical Support [EMEDS] units, the National Guard Reaction Forces [NGRF], and the Joint CONUS Communications Support Environment [JCCSE].

DomPrep: *For the record, Jon, what does the official brief say about the JFHQ-State mission and its marching orders?*

Dodson: JFHQ-State is a C2 [command-and-control] headquarters for military forces. It provides command and control of all National Guard forces in the state or territory for the governor – or, in the case of the District of Columbia, for the Secretary of the Army. It also can act as a joint-services headquarters for the national-level response efforts carried out during contingency operations. In short, it responds to an incident and provides command and control of deployed National Guard and any other military forces. This capability gives the incident commander a "one-stop shopping" point for support.

DomPrep: *What about communications and situational awareness – two topics that General Blum himself has twice stressed in our interviews with him?*

Dodson: Well, each JFHQ-State has a Joint CONUS Communications Support Environment – which I just mentioned – that provides a National Homeland Security Communications capability that includes the equipment needed to establish basic communications services in extreme conditions – for example, when communications capabilities are damaged or destroyed. As for situational awareness, it assists in the development of a common operating picture and helps coordinate multi-state activities. JFHQ-State also will provide a single point of contact for NORTHCOM, PACOM, and other inter-agency stakeholders to receive current and accurate information from any of the 54 states and territories.

DomPrep: *What other relationships are involved besides NORTHCOM, PACOM, and so forth?*

Dodson: JFHQ-State maintains relationships with OASD-HD (DPO-MA) [the Defense Program Office for Mission Assurance in the Office of the Assistant Secretary of Defense for Homeland Defense], SOUTHCOM, the Joint Staff, DTRA [the Defense Threat Reduction Agency], DCMA (Sector lead for DIB) [Defense Management Contract Agency Sector Lead for the Defense Industrial Base], DHS, and a broad spectrum of state and local agencies. In short, the Joint Force Headquarters-State allows for a coordinated response that cuts across local, state, federal, and joint military lines. In that context, I should add that the National Guard has almost completed the process of transforming the National Guard headquarters within all of the states and territories.

DomPrep: *JFHQ-State also would have tactical control of military units, right?*

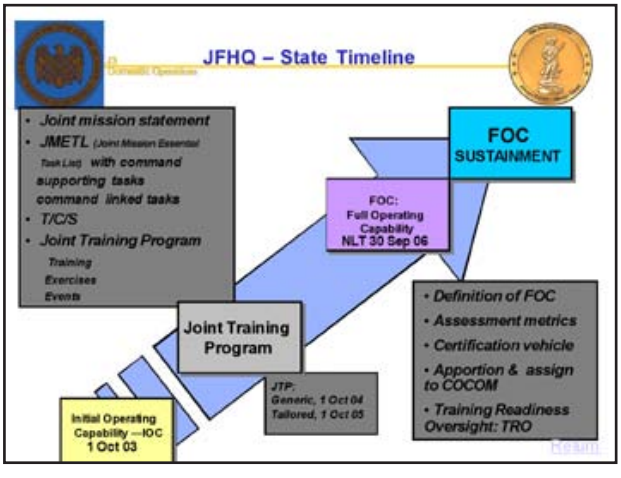
Dodson: Yes. Federal legislation gives governors the authority and ability to field a joint task force. Working under that authority, JTF-State can assume tactical control of all military units, whether state National Guard units, other National Guard forces, and/or both Active and Reserve forces. The JTF-State commander can be a dual-hatted commander of both Title 32 USC and Title 10 USC forces. This is exactly what happened in 2004 at the "G8" Economic Summit and the Democratic and Republican National Conventions. So, JFHQ-State is a joint command and control structure in each state and territory. It also is integrated into the national consequence-management and contingency-planning structures. And the JFHQs also provide a common operating picture to national-level headquarters before and during any contingency operation as well as joint reception, staging, and onward movements, plus integration for all inbound military forces.

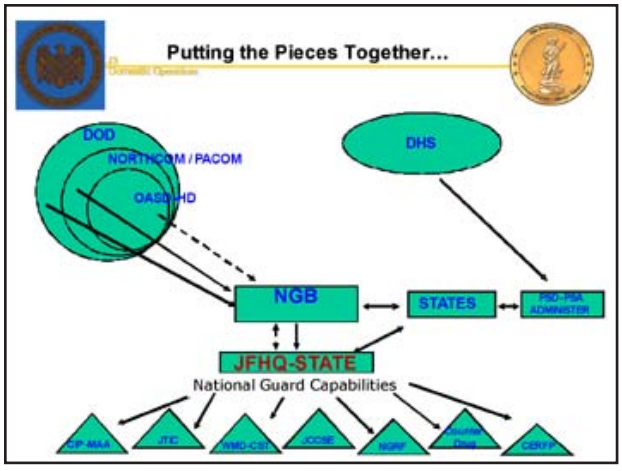
DomPrep: *Jon, what can you tell us about a closely related subject – the Joint Task Force-State.*

Dodson: That's a deployable unit of JFHQ-State. The National Guard Joint Task Force-State [JTF-State] provides command and control for all state military assets deployed in support of civil authorities and/or in response to a specific incident. It also facilitates the flow of information between JFHQ-State and deployed units. When National Guard forces are deployed to support requests from civil authorities, a JTF-State may be created – under the JFHQ-State – to maintain command and control of those forces. Frequently, for small operations, the task-force functions are carried out under jurisdiction of the adjutant general by the everyday JFHQ-State staff and only relatively small elements – such as a transportation unit, an aviation unit, or a CST – are deployed to support the request for assistance. For larger-scale responses, the adjutant general usually will appoint one or more task-force commanders to JTF-States.

DomPrep: *What is the operational interface between the JTF-State commander and the incident commander?*

Dodson: They work closely with regard to situational awareness, response, and military





support. As the senior military commander at the site of an incident, the JTF-State commander also is responsible for *all* assigned military forces on the scene. If additional forces are required, the JTF-State commander can request that the JFHQ-State activate and deploy additional units. Now, for response to a major incident, the JTF-State commander may have a variety of forces deployed – including but not necessarily limited to a WMD-CST [Weapons of Mass Destruction Civil Support Team], a CERFP [Chemical, Biological, Radiological, Nuclear and high-yield Explosive (CBRNE) Enhanced Response Force Package], a reaction force, medical units, and various aviation and ground transportation units.

DomPrep: *Would a JTF-State commander ever be federalized?*

Dodson: Yes. With the consent of the President of the United States, they [the JTF-State commanders] can also be called into federal service and at the same time continue service under state regulations so that they may command both regular (active component – "AC") and National Guard or Reserve forces, thus facilitating a unity of effort for all military forces at the incident site. Whatever the situation, though, I want to emphasize that the task force commander always works closely and in support of the incident commander.

DomPrep: *That's a lot to process all at the same time, Jon. Can you briefly summarize what the military support capabilities are that JFHQ-State and JTF-State provide to local and state first responders?*

Dodson: Yes. They provide command and control for all state military assets deployed in support of civil authorities and/or at the scene of an incident. They facilitate the information flow between deployed units and the JFHQ-State. They can activate and deploy additional forces, or deploy with a CST, a CERFP, a quick reaction force, and with medical, aviation, and ground transportation units. In general, they work closely with the incident commander to ensure that the resources provided are effectively, safely, and legally employed. The JTF commander is the senior commander on the scene and appointed by the TAG [The Adjutant General].

DomPrep: *Is there a formalized training program for the JFHQ-State implementation?*

Dodson: The National Guard Bureau has developed a methodology that fully addresses its Joint Training Program. The NGB will assist in the training and assessing of Joint Force Headquarters in each of the 54 states and territories by helping to build the Joint Mission-Essential Tasks, or JMETS, and Joint Training Plans that lead to and facilitate participation in joint exercises.

DomPrep: *I think our time is just about up, Jon. Do you have any final thoughts for our readers?*

Dodson: Well, to summarize: The Joint Force Headquarters-State allows for a coordinated response that not only cuts across local, state, federal, and joint military lines but also focuses on both Domestic Operations and Homeland Defense – making up what we describe as the "dual missioned" National Guard at work for America. In General Blum's words, the Joint Task Force-State "can, with state-federal concurrence, assume tactical control of all military units ordered to respond to a contingency operation or disaster."

Jonathan Dodson, United States Army Retired, is a graduate of the United States Military Academy. He has a Bachelor of Science from West Point, a Master of Arts in Industrial/Organizational Psychology from Ohio State University, and a Master of Military Art and Science Degree from the U.S. Army Command and General Staff College. He also graduated from the National War College.

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Area Maritime Security Committees

A Unified Effort for Securing U.S. Ports

By Christopher Doane and Joseph DiRenzo III, Coast Guard

Numerous federal, state, and local agencies as well as many private-sector businesses and organizations have a vested interest in any matters affecting the security of U.S. ports and therefore should, and do, share in the responsibility for upgrading and maintaining port security. Several federal agencies have legal obligations, in fact, under both federal and state laws, to secure various elements of port operations. In addition, state governors as well as the mayors of cities both large and small throughout the United States have the responsibility for protecting their constituents' lives and property through various agencies. Finally, the owners and operators of ships, small craft, and other vessels, and of port facilities, are both legally and morally responsible for the security of their employees and property. Any plan for "securing" a port, therefore, must consider the equities of all of these and numerous other "stakeholders" in the local community.

Current federal maritime security regulations – which were enacted in support of the Maritime Transportation Security Act (MTSA) of 2002 and are spelled out in Title 33 of the Code of Federal Regulations – designate the U.S. Coast Guard's Captains of the Port as the Federal Maritime Security Coordinators for their respective areas in port cities throughout the country. The key word in that title is coordinator. The Captain of the Port does not command the other port-security stakeholders; he or she *coordinates* their efforts to effectively and efficiently minimize the security risks within the port.

It must be clearly understood that, when it comes to securing U.S. ports, no single agency is in charge and no single agency has all of the resources needed to protect the port, by itself, against all possible dangers that threaten the security of that port. Instead, the authorities and capabilities of all port-security stakeholders must be combined in a unity of effort to properly secure the port. The Area Maritime Security Committee provides the organizational framework needed to achieve that unity of effort.

Common Interests and Overlapping Responsibilities

The Area Maritime Security Committees were established by the MTSA and, in the words of the supporting maritime security regulations, are required to have no fewer than seven members "having an interest in the security of the area." According to the same regulations, the Area Committee has six primary responsibilities, as follows:

> ***The owners and operators of ships, small craft, and other vessels are legally and morally responsible for the security of their employees and property***

- Identify critical port infrastructure and operations;
- Identify risks;
- Determine mitigation strategies and implementation methods;
- Develop the process needed for continual evaluations of port security;
- Provide advice to and assist the Captain of the Port in developing an Area Maritime Security Plan; and
- Serve as a link for communicating information, to appropriate port stakeholders, about potential threats as well as changes in maritime-security levels and other security information.

The regulations also require that committee members be selected from federal, territorial, tribal, state, and local government entities as well as from law-enforcement and security organizations, the maritime industries, and other port stakeholders. Area Maritime Security Committees now have been established in every Captain of the Port Area within the United States and U.S. territories.

Development of the Area Maritime Security Plan is one of the most critical functions of the area committees. According to the MTSA, the Area Plan should, among other things, establish the procedures needed to adequately "deter a transportation security incident … to the maximum extent practicable." The MTSA also requires the Area Plan to consider "the use of public/private partnerships to enforce security within security zones, shoreside protection alternatives, and the environmental, public safety, and relative effectiveness of such alternatives."

The partnership concept mandated by the MTSA was reinforced significantly by enactment of the Safe Port Act of 2006, which calls for the establishment of Interagency Operational Centers for Port Security – which must include representatives from appropriate federal, state, and local agencies as well as members of the Area Maritime Security Committees and other public and private-sector stakeholders. The end result is a three-pronged legislative foundation to secure U.S. ports under which the Area Committees provide the forum, the Area Plans provide the methods, and the Operational Centers provide the means for achieving the unity of effort required from all of the stakeholders possessing a vested interest in the security of the nation's port system.

Christopher Doane (pictured) and Dr. Joseph DiRenzo III are retired U.S. Coast Guard officers. Both are visiting senior fellows at the U.S. Joint Forces Staff College and mentors for Northcentral University instructing on homeland-security topics. *The views expressed in this article are those of the authors and are not to be construed as official policy and/or reflecting the views of the U.S. Coast Guard and/or the Coast Guard commandant.*

Pennsylvania, Texas, Massachusetts, and Michigan

By Adam McLaughlin, State Homeland News

Pennsylvania
New County-Based Disaster/Emergency-Response Team

The National Disaster and Emergency Response Team (NDERT) is in its first year as a nonprofit organization seeking to train its members to improve security and provide other help during emergency situations in Pennsylvania and other states.

Jonathan Williams, an Air Force veteran and one of the group's founders, said the goal of the group is to help the state's law-enforcement community upgrade its security and other capabilities. Williams, whose own background is in the security and search-and-rescue fields, also said he saw how undermanned the law-enforcement agencies responding to Hurricane Katrina were. Although Pennsylvania and Maryland already have search-and-rescue teams in place, he said, more such teams are always needed.

"Whether it is evidence collection or searching, even [for] a lost child, things like that need to be looked at," Williams said. "So we decided to 'intermingle' the idea." Moreover, although many disaster-response agencies already have security teams on their rosters, Williams said, the primary mission of those teams usually involves the safety of the groups to which they belong. He said such teams also should be able to help out local law-enforcement agencies and fire departments – many of which are chronically undermanned, he pointed out.

The "main focus" of many and perhaps most of the security teams already in place, Williams continued, is to "secure their organization, not go out and help the agencies … scattered throughout a hurricane or flood ... [and] that need a security [team] … to staff their command post. … That is where we come in."

NDERT already has entered into a mutual-aid agreement with Adams County, and is pursuing similar arrangements with other counties as well, Williams said. It also is working closely with the Pennsylvania Emergency Management Agency, and is trying to "get the word out" about its potential usefulness to other agencies, particularly those in nearby counties where the team would be most quickly available to respond to emergencies.

The NDERT boasts 10 active full-time members, all of whom have backgrounds ranging from law enforcement and firefighters to juvenile law and business. The organization is still recruiting new members, Williams said, and plans to organize five-man teams skilled in various tactical and search-and-rescue capabilities. The group holds monthly meetings and also plans to conduct field and classroom training. Williams said he knows of various certifications that are available for members to pursue, including some that would allow members to respond to plane crashes.

Several experts have said that, of the hundreds of facilities nationwide that offer live-fire training, the A&M center is one of the best in preparing firefighters for dealing with chemical plant explosions

Texas
University Program Gives Firefighters Real-World Training

Two gas lines carrying dangerous hydrocarbons have ruptured at a chemical plant on a windy morning. When the first firefighters arrive, an employee says he does not know the fate of the maintenance crew that was near the flaming pump. Suddenly, a hose opens up on the blaze, which has sent a black plume of smoke into the sky. Foam squirts toward the flames, knocking them down. Moments later, four men wearing bunker gear waddle toward the shutoff valve to prevent a massive explosion.

Fortunately, this is not another industrial accident in downtown Dallas or Houston. It is an elaborately staged training exercise designed to upgrade the capabilities of firefighters from oil and gas plants around the world. The exercises are carried out by Texas A&M University at a 120-acre training center that operates year-round on campus.

Approximately 40,000 emergency responders report in at the Brayton Fire Training Field annually for fire, rescue, and hazardous-materials training. The facility's operations are funded under an almost $80 million allocation in the Texas Engineering Extension Service budget; most of that funding comes from tuition, private-sector donations, and government grants.

The Brayton Fire Training Field is equipped with 22 major props – including pumps, a rail car rack, a loading terminal, and a liquefied natural gas plant – that produce real flames and that can simulate a variety of fires. The training campus even has a hay-filled airplane fuselage on the premises, as well as a ship on which rescuers can practice putting out flames in a smoke-filled environment.

Several experts have said that, of the hundreds of facilities nationwide that offer live-fire training, the A&M center is one of the best in preparing firefighters for dealing with chemical plant explosions. "It is as close as you can get to real life," said Peter Greco, a volunteer instructor who works for Lyondell in Houston. "You [the trainees] have … to make difficult calls and decisions, and you have to cut down on your personal hesitations."

The school sees an increased demand for training after most real-life catastrophes. This is what happened after the Oklahoma City bombing in 1995, the 11 September 2001

attacks on the Pentagon and the World Trade Center, and the explosion at BP's Texas City refinery in 2005 that killed 15 people and injured more than 170. "We tend to forget about training during periods when we don't have any large incidents," said Robert Moore, the operations chief at the training field. "The larger the event, the more it affects industry and the more it brings us back to our core values of people and training."

Massachusetts
Harvard University Earns StormReady® Distinction

Harvard University was recently recognized as a StormReady® community - the fifth in Massachusetts to be so designated. It also is the first university in New England and first of the Ivy League schools to attain this certification, which indicates that Harvard possesses the emergency communications capabilities needed to carry out its preparedness responsibilities in the event of a natural disaster.

"Harvard University is very pleased to be a part of the StormReady® program," said Gary Kassabian, director of emergency services for university operations services. "While no campus can be storm proof, Harvard will be better prepared to deal with severe weather through improved planning, education, and awareness as a result of our partnership with the National Weather Service [NWS]."

The nationwide community-preparedness program uses a grassroots approach to help communities develop plans to handle local severe-weather and/or flooding threats. A StormReady® designation remains in effect for three years, after which time the university or other entity designated as StormReady® must go through a renewal process. The program is voluntary and provides communities with clear-cut advice from a partnership formed between local NWS forecast offices and state and local emergency managers.The StormReady® program started in 1999 with the designation awarded to seven communities in the Tulsa, Oklahoma, area. There are currently 1,208 StormReady® sites across the country, including 18 universities.

With a university population of 45,000, Harvard had to meet the same qualifications that would be required of a city of the same size. To be recognized as StormReady® a community must:

- Establish a 24-hour warning-point and emergency-operations center;
- Have more than one way to receive severe weather forecasts and warnings and to alert the public;
- Create a system that monitors local weather conditions;
- Promote the importance of public readiness through community seminars; and
- Develop a formal hazardous-weather plan that includes the training of severe-weather spotters and the scheduling of emergency exercises.

"StormReady® encourages communities to take a new, proactive approach to improving local hazardous-weather operations and public awareness," said Glenn Field, the NWS warning coordination meteorologist in Taunton, Mass. "StormReady® arms communities with the improved communications and safety skills needed to save lives and property before and during the event."

Michigan
Port Huron Firefighters Train on Rail Car Response

On Tuesday, 14 August, firefighters from Port Huron seized a rare opportunity to learn more about the hundreds of freight-carrying rail cars that enter the city each day.

CN Railway brought a specially outfitted training car to the 16th Street Amtrak station, where firefighters participated in several hands-on exercises. Port Huron Fire Captain Mark White said the training allows firefighters to learn more about the numerous systems, valves, and other major components of rail cars. Firefighters from all shifts would have a chance to attend the training during the next three days, he said. "If any type of accident or incident would take place," he said, the training would "help to prepare us for a variety of different events."

Knowledge of rail-car systems is important to the ability of Port Huron's emergency responders to carry out their assigned duties. Local police and firefighters are charged with responding to incidents at the rail tunnel connecting Sarnia to Port Huron. The tunnel is one of the busiest international freight crossings in the United States, according to the U.S. Bureau of Transportation Statistics. In a 2003 study, only two Texas communities – El Paso and Laredo – were ranked as being busier.

A StormReady® designation remains in effect for three years, after which the university or other entity must go through a renewal process

Greg Palmer, the dangerous-goods officer from the CN Railways Pontiac office, said the Canadian rail carrier makes the training car available to local departments to help them become better prepared for emergencies. The training car, called CN 911, is used for training drills and exercises across the United States and Canada. Palmer said the car is in high demand and already booked for the next two years. It is scheduled to move on to Pontiac after the Port Huron training is finished.

One of the most valuable aspects of the training, Palmer said, is that CN officials get to meet local officials and to know what they will be working with in the event of a future disaster. The company places a high priority on "getting out to responders ahead of time and letting them know what resources the railroad is bringing into play," Palmer said.

Adam McLaughlin is Preparedness Manager of Training and Exercises, Operations, and Emergency Management for the Port Authority of N.Y. & N.J. He develops and implements agency-wide emergency response and recovery plans, business continuity plans, and training and exercise programs.

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